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# EUROPEAN PATENT APPLICATION

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⑦① Applicant: **Conoco Inc.**  
 1000 South Pine Street  
 Ponca City Oklahoma 74603 (US)

⑦② Inventor: **Leach, Colin Peter**  
 1631 Beaconsire  
 Houston Texas 77077 (US)

⑦④ Representative: **Davies, Christopher Robert et al**  
 Frank B. Dehn & Co. Imperial House 15-19 Kingsway  
 London WC2B 6UZ (GB)

## ⑤④ Method and apparatus for deepwater drilling.

⑤⑦ A method and apparatus for drilling subsea wells in water depths exceeding 3000 feet (preferably exceeding 4000 feet). Drilling mud returns are taken at the seafloor and pumped to the surface by a centrifugal pump (81) that is powered by a seawater driven turbine. A low-differential pressure rotating head (70) seats in the upper tapered portion of the longitudinal throughbore of an upper stack package (60) which is attached to the top of the blowout preventer stack and seals against the drill string (12) as it is run in and out of the borehole. The drilling mud returns are pumped to the surface via a mud return line (82), a conventional riser not being used.

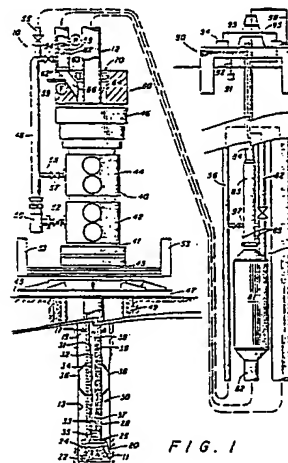


FIG. 1



European Patent  
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# EUROPEAN SEARCH REPORT

Application Number

EP 88 30 4057

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	US-A-4 149 603 (ARNOLD) * Whole document *	14	E 21 B 7/12
Y		1,2	E 21 B 21/00
A		3-7, 9, 11,13	E 21 B 21/08 E 21 B 33/035
Y	US-A-3 638 721 (HARRISON) * Claim 1 *	1,2	
A		8,11,12	
A	US-A-3 603 409 (WATKINS) * Column 3, lines 49-52 *	10	
A	US-A-4 063 602 (HOWELL et al.) * Abstract *	1,11	
A	US-A-4 291 772 (BEYNET) * Abstract *	1,11	
A	US-A-4 046 191 (NEATH) * Abstract *	1,11	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 21 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22-08-1989	Examiner HEDEMANN, G. A.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			